high_order_integrals.py

List of calculated quantities:

Displacement thickness

$$\delta^* = \int_0^\infty \frac{\langle u \rangle}{U_w} dy$$

Momentum thickness

$$\theta = \int_0^\infty \frac{\langle u \rangle}{U_w} \left(1 - \frac{\langle u \rangle}{U_w}\right) dy$$

Reynolds number based on displacement thickness

$$Re_{\delta^*} = \frac{U_w \delta^*}{\nu}$$

Reynolds number based on momentum thickness

$$Re_\theta = \frac{U_w \theta}{\nu}$$